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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DINH, TAN X

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,828

Applicant(s)

SEO, JIN-GYO

Examiner

TAN X. DINH

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-29 is/are pending in the application.
- 4a) Of the above claim(s) 13-17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

1) The amendment filed 8/17/2004 is acknowledged. Claims 2,13-17 have been canceled. New claims 27-29 are currently been added.

2) The drawings are objected to because figures 3A *and* 3B should be designated by a legend such as --PRIOR ART-- since only that which is old is illustrated (The specification, page 5 indicates that " FIGS. 3A and 3B are waveforms of write pulses forming the domain shown in the lower part of FIG.2 " and figure 2 is PRIOR ART, therefore, figures 3A and 3B must labeled as " PRIOR ART " also). See MPEP § 608.02(g).

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

The replacement sheet(s) should be labeled "REPLACEMENT SHEET" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures.

If the changes are not accepted by the Examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3) Claims 6-8,12 *and* 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey

to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Newly amended Claims 6-8,12 and 28 recite the power level of first pulse/last pulse/multi-pulse depending on a *size of the mark* which is not show in the original disclosure. As seen in figures 6A,6B and the specification, page 9, table 1, and page 10, paragraph [0039], states that " FIGS. 6A and 6B are waveforms of multiple pulse trains when a recording control method according to the present invention is used. Referring to FIG. 6A, in a first multiple pulse train, *a first pulse, a multi-pulse, and a last pulse* have different power levels depending on the size of a current mark as set forth in a fifth case of Table 1. In a second multiple pulse train, an adaptive recording control method is applied to *first and last pulses* as set forth in a sixth case of Table 1. In a third multiple train, the power level of a last pulse is set depending on the size of a current mark.". Thus, the power level of first pulse alone, a multi-pulse alone or last pulse alone are not depend on the size of the mark as claimed. These new features are considered as new matter.

4) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

Art Unit: 2653

5) (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6) (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7) Claims 1,3-12,18-20,24-28 are rejected under 35 U.S.C. 102(b) as being anticipated by APPLICANT's PRIOR ART (Figs.1A,1B,2,3A,3B and 7-9).

The APPLICANT's PRIOR ART (Figs.1A,1B,2,3A,3B and 7-9) discloses an adaptive recording method using an optical recording medium as claimed in claim 1, comprising:

forming a mark using a multiple pulse train comprising a first pulse, a multi-pulse having a peak power level and a last pulse (Fig.3A, first pulse at beginning of pulse chain, multi-pulse in the middle of pulse chain and last pulse at the end of pulse chain);

adapting a power level of the first pulse relative to the peak power level of the multi-pulse depending on a correlation between the mark and a previous space (Fig.3A, the changed depending on combination of previous space and current mark);

adapting a power level of the last pulse relative to the peak power level of the multi-pulse depending on a correlation between the mark and a next space (Fig.3A, the changed depending on combination of current mark and next space);

driving a recording unit with the multiple pulse train having the adapted power levels (the multiple pulse train is driven by the power control as seen in figures 7-9. See also Korean Patent Abstract Publication, P 1999-002461, English abstract, figures 1 and 3)).

As to claim 3, the APPLICANT's PRIOR ART shows the multiple pulses depending on a density of a NRZI signal which defines the mark and space (Figures 1A,1B,2,3A,3B and 7-9 and the specification, pages 6-7. See also Korean Patent Abstract Publication, P 1999-002461 (English abstract and figures 1 and 3)).

As to claim 4, the APPLICANT's PRIOR ART shows the recording unit is laser diode (figure 7, driver circuit for laser diode).

As to claim 5, the APPLICANT's PRIOR ART shows the power level of first pulse is adapted to be higher or lower than the peak power level of the multi-pulses (Fig.3A, the first pulse is higher than peak power level of the multi-pulses).

Since the features of claims 6-8 and 12 were not exist in the original disclosure, therefore, they are inherently shown in the APPLICANT's PRIOR ART (Figs.1A,1B,2,3A,3B and 7-9).

As to claim 9, the APPLICANT's PRIOR ART shows the power level of last pulse is adapted to be higher or lower than the peak power level of multi-pulse (Fig.3A, the power level of last pulse of second multiple pulse train is lower than the peak level of multi-pulse. The power level of last pulse of the multiple pulse train is higher than the peak level of multi-pulse).

As to claims 10 and 11, the APPLICANT's PRIOR ART shows the power level of last pulse depending on the size of the mark (Fig.3A, second multiple pulse train where the power only applied to the last pulse).

As to claim 18, the APPLICANT's PRIOR ART shows a method for controlling recording a signal on an optical disk including the step of providing a multiple pulse train for recording mark on the optical disk, the multiple pulse train comprising a first pulse, a multi-pulse having a reference power level and a last pulse (figure 3A, first pulse, a multi-pulse having a reference power level and a last pulse), and controlling a power level of last pulse independent of a power level of first pulse (specification, page 6, paragraph [0025]. In this case, the power of last pulse and first pulse are independently controlled and adjusted depends on the combination

between previous space and current mark or depends on the correlation between next space and current mark. See figure 3A, the power applied *only to first pulse on first multiple pulse train, the power applied only to last pulse on second multiple pulse train*).

As to claim 19, the APPLICANT's PRIOR ART shows the power levels of the first and last pulse are controlled by selecting a peak power level P_w , a power P_{wh} higher than the peak power level P_w , or power P_{wl} lower than the peak power level P_w to be generated during the first and last pulses (Fig.3A, the power levels of the first and last pulse are controlled by selecting a peak power level, higher than peak power level or lower than peak power level).

As to claim 20, the APPLICANT's PRIOR ART shows P_w is an optimum peak power level and P_w and P_{wl} are generated by adding or subtracting a predetermined value to or from the optimum peak power level P_w respectively (as seen in figure 3A, any power level higher than peak power level and P_w or lower than peak power level and P_w by adding or subtracting a predetermined value).

As to claim 24, the APPLICANT's PRIOR ART shows a method of controlling recording marks on an optical disk using pulse trains comprises first, second and third multiple pulse trains each having a first pulse, a multi-pulse having a reference power level and a last pulse (figure 3A, first pulse, a multi-pulse having a reference

power level and a last pulse), providing a different reference power level to each multi-pulse train depending on the energy or density of a non-return-to-zero inverted (NRZI) signal detecting correlation between a current mark and a space between successive marks (figure 3A and 3B. See also the specification, page 6, paragraph [0025] to [0029]).

As to claim 25, the APPLICANT's PRIOR ART shows the power level of the first and last pulse of each of first, second and third multi-pulse trains is higher or lower than reference power level (Fig.3A, the first and last pulse of first, second and third multiple pulse trains either higher or lower peak power level).

As to claim 26, the APPLICANT's PRIOR ART shows the power level of multi-pulse is controlled independent of first and last pulses in figure 3B (the power level of multi-pulse (peak power level) is controlled depends from on the energy of NRZI signal).

As to claim 27, the APPLICANT's PRIOR ART shows a method of forming a mark on an optical recording medium, the method comprising the step of :

generating a recording pulse train comprising a first pulse, a multi-pulse having a peak power level and a last pulse (Fig.3A, the second multiple pulse train, first pulse, a multi-pulse having a peak power level and a last pulse);

adapting a power level of at least one of the first pulse and the last pulse relative to a peak power level of the multi-pulse depending on a correlation between the mark and one of a previous space and a next space (Fig3A, the third multiple pulse train);

driving a recording unit with the recording pulse train to record the mark on the optical recording medium (figures 3A and 3B. See also the specification, page 6, paragraph [0025] to [0029]).

Since the features of claim 28 was not exist in the original disclosure, therefore, this feature inherently shows in the APPLICANT'S PRIOR ART (Figs.1A,1B,2,3A,3B and 7-9).

8) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9) Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over APPLICANT'S PRIOR ART (Figs.1A,1B,2,3A,3B and 7-9).

The APPLICANT'S PRIOR ART discloses all the subject matter claimed as in claim 21, except to specifically show that multi-pulse reference power level is greater than first pulse power level and less than last pulse power level. It would have been obvious to

someone within the level of skill in the art at the time of the invention was made to adjust the power level of multi-pulse to be greater/lower first or last pulse, the rationale is as follows: In figure 3B of the prior art and the specification, paragraph [0027] to [0028], the power level of multi-pulse is adjusted the peak power level P_w , which is the reference power level may be controlled depending on the density of marks and spaces. Figure 3B shows an example in which a reference power level, which is a reference write power level or a peak level is adjusted depending on energy of a non-return-to-zero inverted (NRZI) signal (a mark and a space correspond to high and low levels of an NRZI signal, the reference power level is any of peak powers 1, 2, and 3 depending on the energy of an NRZI signal). In another words, the multi-pulse reference power level can be adjusted at any suitable value as compared to first pulse and last pulse, therefore, one of ordinary skill in the art at the time of the invention was made would have been motivated to adjust the multi-pulse reference power level for greater than first pulse power level and less than last pulse power level as claimed.

As to claim 22, the APPLICANT's PRIOR ART shows a second multi-pulse train having a first pulse, a multi-pulse having a reference power level, and a last pulse, wherein the power level of multi-pulse of second multi-pulse train is less than first pulse and greater than

last pulse (Fig.3A, second multiple pulse train having power level of multi-pulse less than first pulse and greater than last pulse).

As to claim 23, since the multiple pulse trains power level (first, second and multi-pulse) can be adjusted at any suitable value as compared to first pulse and last pulse, as indicated in paragraph (7) above, one of ordinary skill in the art at the time of the invention was made would have been motivated to adjust power level of multi-pulse is equal to first pulse power level and greater than last pulse as claimed (the third multiple pulse train is shown in figure 3A).

10) Claim 29 is allowed.

11) Claim 18 is further rejected under 35 U.S.C. 102(e) as being anticipated by KANDO et al (6,678,228).

KANDO et al discloses a method of controlling recording a signal on an optical disk as claimed in claim 18, comprising the step of:

Providing a multiple pulse train for recording mark on the optical disk, the multiple pulse train includes first pulse, multi-pulse having a reference power level and a last pulse (Fig.1, first, pulse, multi-pulse and last pulse);

Controlling the power level of last pulse independent with first pulse (column 6, line 48-67).

12) Applicant's amendment necessitated the new ground(s) of

rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


13) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see form PTO-892 attached herein).

Applicant is reminded that in amending in response to a rejection of claims (if the rejection involves with any applicable arts), the patentable novelty must be clearly shown in view of the state of the art disclosed by the references cited and the objection made. Applicant must also show how the amendments avoid such references and objections. See 37 CFR 51.111(c).

14) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner TAN X. DINH whose telephone number is (571)272-7586. The examiner can normally be reached on Monday-Friday from 8:00AM to 5:00PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


TAN DINH
PRIMARY EXAMINER
May 24, 2005